

CHAPTER 2

PLANNING OPERATIONS

2-1. INTRODUCTION. This chapter discusses the elements that must be considered before a mission. A successful mission must be thoroughly planned and executed by personnel who know the capabilities and limitations of the aircraft, equipment, personnel, and terrain. This chapter also discusses preparing hazardous materials. These include explosives, flammable liquids and solids, oxidizers, corrosive materials, compressed gases, poisons, irritating materials, etiologic agents, and radioactive materials.

2-2. EMPLOYMENT CONSIDERATIONS

a. Advantages. The helicopter overcomes many of the obstacles that prevent other modes of transportation from completing the mission. The major advantages are as follows:

(1) By transporting the load internally, the helicopter can rapidly move items directly to their destination.

(2) Damaged or congested highways, destroyed bridges, and almost all en route terrain obstacles have no effect when transporting cargo by air.

(3) The helicopter may use different routes of flight to provide a diversion and to maintain security of the unit on the ground.

(4) Cargo may be rapidly moved into or out of an area. This aids the ground unit in obtaining items of equipment when and where it needs them.

(5) The helicopter can move combat troops and weapons where they are needed and relocate them in a rapidly changing battlefield situation.

(6) A landing zone (LZ) can be relocated rapidly to avoid detection and on-ground security.

b. Disadvantages. The disadvantages of transporting cargo internally by helicopter are as follows:

(1) The size and weight of the cargo may exceed the design limits of the aircraft.

NOTE: Any restrictions that apply to helicopters in general also apply here, whether for internal load operations or for a routine training flight.

(2) Aviation assets are limited.

(3) Maintenance downtime and priority of missions must be considered to ensure that aircraft are used wisely.

(4) Bad weather may adversely affect the operation.

(5) The LZ terrain can present natural obstacles to aircraft that become particularly critical factors during internal load missions.

CAUTION

The size of the LZ must be increased to give the pilot more room to maneuver when operations are planned during darkness or under reduced visibility.

c. Safety. To safely conduct internal cargo loading operations, each individual must be aware of the safety hazards he will face, such as static electricity, rotor wash, and other operations involving close proximity to the aircraft. The helicopter crew will conduct the flight according to the applicable service procedures and regulations.

(1) Static Electricity. In flight, a helicopter generates and stores a charge of static electricity. When the helicopter lands, this charge passes to the ground through the helicopter grounding system.

(2) Rotor Wash. Rotor wash is the high velocity air movement under a helicopter. Large helicopters, such as the CH-47, can generate rotor wash in excess of 120 knots. This strong wind may cause ground crew personnel difficulty in walking or standing and its force can move unsecured material. The greatest rotor wash velocity occurs between 20 to 60 feet outside the rotor disc.

WARNING

Personnel working around helicopters should wear personal protective equipment. Ground personnel who inadvertently encounter high velocity rotor wash should drop to a sitting or prone position to keep from being injured.

2-3. REQUEST PROCEDURES

a. The division commander prescribes the aerial support request procedures within the division. He determines what will work best within the particular type of division. An example of a request procedure follows: a battalion receives a mission from the division transportation officer (DTO) in which the battalion commander determines he must move a company by air to complete the mission. The battalion operations officer then sends a request to the brigade S3 who in turn forwards it to the division G3 air to commit a divisional aviation unit to support the company being moved. The G3 air controls and commits the aviation assets of the division in coordination with the requirements of the G3.

b. The nondivisional unit's aerial support request procedure works the same way in that the controlling headquarters submits the support request. The difference is that the request goes through command operational channels to the corps movement control center (MCC). The MCC will coordinate and arrange for aerial support.

2-4. RESPONSIBILITIES. Three different units are normally involved in an internal load mission: the supported unit that requested the mission, the aviation unit that will provide the aircraft, and the receiving unit that is having the cargo delivered to it.

a. The supported unit —

(1) Selects and controls the pickup zone (PZ). Pathfinders can be a great help in both of these areas as they have a mission responsibility for aircraft control and are trained in site selection.

(2) Ensures advanced coordination with the transporting unit.

(3) Ensures that before preparation of equipment is begun, all preparation, loading, tie-down, and unloading procedures and pertinent photographs,

tie-down diagrams, and tie-down data tables are carefully reviewed.

(4) Prepares supplies and equipment for air transport with technical supervision and assistance as required from appropriate field support units.

(5) Ensures that if vehicles are loaded with cargo, the cargo is restrained and all other loose equipment in the vehicles is secured.

(6) Loads, ties down, and unloads the vehicle and cargo from the helicopter, subject to the approval of the helicopter commander, flight engineer, or crew chief.

(7) Ensures that loads are properly prepared and do not exceed any weight or size limitations imposed by the transporting helicopter.

(8) Provides appropriate safety equipment to all unit personnel who will be around the loading operations.

(9) Polices the PZ.

b. The aviation unit —

(1) Coordinates with the supported and receiving units and appoints a liaison officer who is thoroughly familiar with the capabilities and limitations of his unit's assigned aircraft.

(2) Advises the supported unit on size and weight limitations of the loads that may be hauled.

(3) Advises the supported unit and the receiving unit on the suitability of the selected PZ/LZ, including lighting restrictions for night-vision-aided operations.

(4) Becomes familiar with the security, safety, and technical peculiarities of the loads that may adversely affect air transport.

(5) Provides all components of the 5,000- and 10,000-pound tie-down assemblies used for internal transport in helicopters.

NOTE. The supported unit still packages and provides disposition instructions to the aviation unit.

(6) Arranges for the aircraft to be at the PZ on schedule.

(7) Establishes safety procedures that will ensure uniformity and understanding of duties and responsibilities between the ground crew and flight crew.

c. The receiving unit —

(1) Selects and controls the LZ. Again, the pathfinders are a great help here.

(2) Has trained ground crews available to guide the aircraft in.

(3) Coordinates with the supported unit for retrograde of items that belong to the supporting unit.

(4) Prepares, coordinates, and inspects back loads and has them ready for loading when the aircraft arrives.

2-5. PLANNING. The most important part of the mission is prior planning. Prior planning, along with coordinating plans with the aviation liaison officer, is essential for a smooth, safe operation. During the planning phase, the entire mission is reviewed and all limitations and problem areas are resolved. If a particular problem cannot be resolved, consider another mode to transport the item of equipment that presents the problem. For additional information, use FM 90-4 as a reference for planning internal (and external) load operations. This FM provides current PZ/LZ planning considerations and defines supported unit responsibilities.

a. Ground Crews. The number of ground crews needed by a unit depends on how the commander plans to fulfill his mission. Personnel selected from all unit members can be trained as ground crew members. The duty performed by these personnel is an additional duty. The number of crews needed depends on how much of the unit's equipment will be transported by internal means, the number of aircraft, and the frequency of flights.

(1) Personnel. Personnel selected to load, tie down, and unload vehicles and other cargo to be transported by air must be qualified and trained to drive vehicles, tie down cargo (at the direction of the aircraft crew chief or flight engineer), position shoring, and act as guides. They must have a thorough knowledge of their equipment (the crew of the aircraft is responsible for the loading of the aircraft). They must be able to operate the equipment,

position it in the helicopter cargo compartment, set hand brakes, and when applicable, leave gears engaged for parking.

(2) Equipment. Make a complete inventory of a unit's equipment, considering how the equipment would be loaded internally for helicopter transport. Small items or items that cannot be individually loaded may be placed on a pallet or in a cargo net. Determine how many pallets or cargo nets you will need. Your complete inventory of equipment by platoon/section/ crew should help to determine what you will need. A complete description of the pallet, cargo nets, and instructions for their use are in Chapter 3. Once you determine how each item will be loaded, requisition a consolidated list of the number of pallets and cargo nets through supply. The unit SOP should contain loading plans to assist the ground crew and prevent confusion at a time when speed and control are needed.

b. Pathfinders. The best way to establish a PZ or LZ is to use pathfinder trained personnel. Their primary mission is to provide navigational assistance and control to Army aircraft in areas designated by the supported unit.

(1) Pathfinders also—

- Provide limited advice and physical assistance to supported units in planning resupply of air assault operations.
- Prepare and position personnel and loads for air movement.

(2) The pathfinders have many functions, some of which include —

- Conducting reconnaissance for LZs in areas selected by the supported unit commander.
- Preparing the LZ or PZ, including establishing and operating visual and electronic navigational aids and removing minor obstacles.
- Furnishing ground-to-air voice radio communication to aircraft to provide information, guidance, and air traffic control advisors within the areas of operation.
- Providing advice and limited physical assistance in preparing and positioning loads for air movement.

- Conducting limited nuclear, biological, and chemical (NBC) monitoring or surveying designated areas.
- Providing limited weather observations, such as wind direction and velocity, cloud cover, visibility, approximate ceiling, and density altitude.

(3) Pathfinder units are limited in personnel and equipment resources. Restrict their employment to aircraft guidance and other primary tasks. Augment pathfinder units by additional personnel from a supported unit to —

- Provide security.
- Remove major obstacles.
- Operate additional radio nets and telephones.
- Transport items of equipment.
- Recover and assemble equipment and supplies.
- Conduct detailed NBC monitoring and survey.

(4) Complete pathfinder operations and employment considerations are in FM 57-38. If pathfinders are not available, then the supported unit will perform the above mentioned tasks. FM 57-38 also contains details on the selection and marking of PZs and procedures that should be used to control the aircraft.

c. Site Selection. The selection of a usable PZ or LZ is extremely important. Analyze logistical and tactical considerations to make sure that the PZ or LZ is placed at the right spot to support the ground unit. The area must also be accessible to the aircraft that are going to use the site.

(1) As a general rule, the shape of the PZ or LZ is circular and from 25 to 100 meters in diameter (Figures 2-1 and 2-2). It should be free of obstructions, such as trees, stumps, bushes, or man-made objects, that could cause damage to the helicopter. Mark hidden obstructions or warn the supporting aviation unit of their presence.

(2) Consider the number of aircraft that will be using the site at one time along with its use after dark. If night resupply is scheduled, a larger area is normally needed.

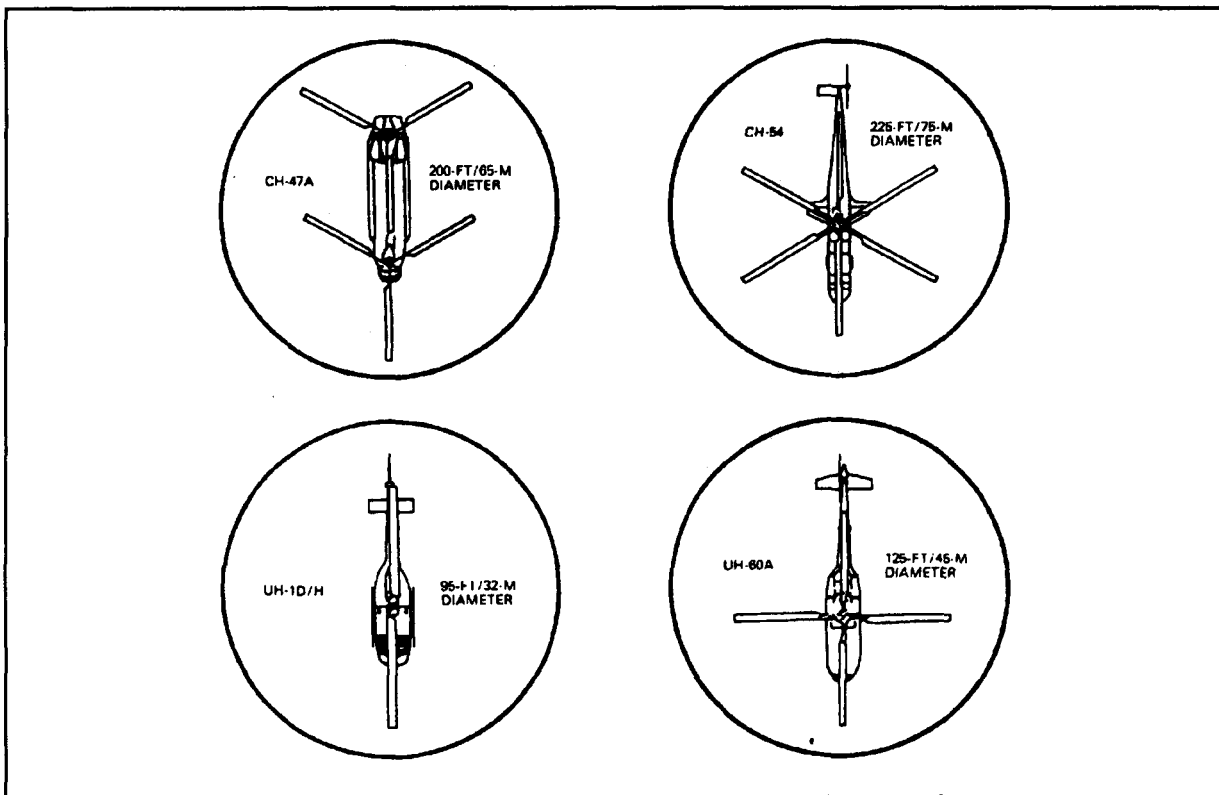


FIGURE 2-1. Minimum Required Clearances (Without External Loads).

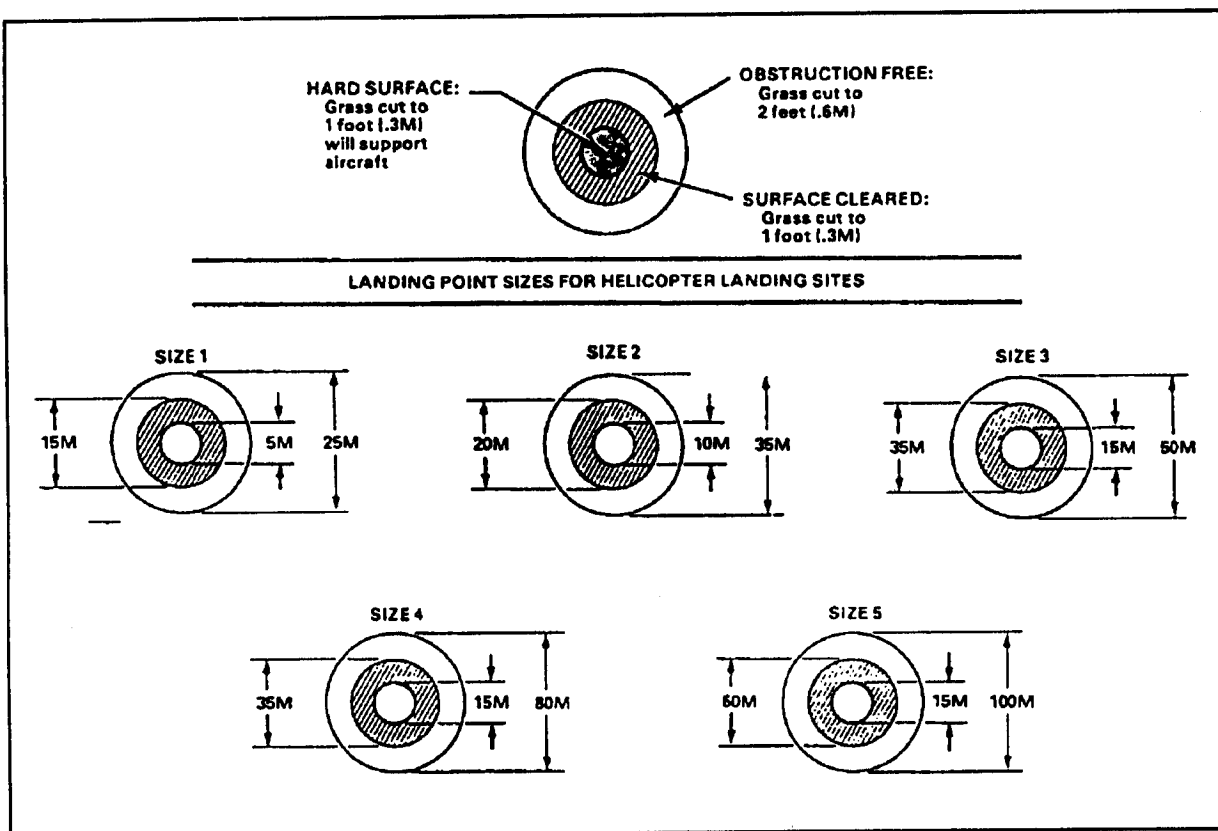


FIGURE 2-2. Helicopter Landing Sites.

(3) Surface condition should be solid enough to prevent a helicopter or load from bogging down. Blowing dust, sand, pea gravel, or loose debris can cause damage to people as well as equipment or aircraft.

(4) If the site has a slope of 15 degrees or more, a helicopter cannot land on it. The pilots will be directed to hover as appropriate. The avenues of approach and departure of a PZ or LZ should be over the lowest obstacle in the direction of the prevailing winds.

(5) The final decision on PZ or LZ acceptance will be made by the pilot in command of the helicopter.

WARNING

To reduce the possibility either of injury to ground crew personnel from flying debris or of an accident resulting from debris being drawn up into the helicopter rotor blades, police the operational area thoroughly.